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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/689,784	10/21/2003	Maxime Rattier	046190/269883	7572
826	7590	10/18/2004	EXAMINER	
ALSTON & BIRD LLP BANK OF AMERICA PLAZA 101 SOUTH TRYON STREET, SUITE 4000 CHARLOTTE, NC 28280-4000			TRAN, TAN N	
			ART UNIT	PAPER NUMBER
			2826	

DATE MAILED: 10/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/689,784

Applicant(s)

RATTIER ET AL.

Examiner

TAN N TRAN

Art Unit

2826

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 October 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 12-17 and 19-21 is/are rejected.
- 7) ☒ Claim(s) 4-11 and 18 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 October 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 21 October 2003.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Specification*

1. The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

### *Arrangement of the Specification*

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC (See 37 CFR 1.52(e)(5) and MPEP 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text are permitted to be submitted on compact discs.) or  
REFERENCE TO A "MICROFICHE APPENDIX" (See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.)
- (e) BACKGROUND OF THE INVENTION.
  - (1) Field of the Invention.
  - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (f) BRIEF SUMMARY OF THE INVENTION.
- (g) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (h) DETAILED DESCRIPTION OF THE INVENTION.
- (i) CLAIM OR CLAIMS (commencing on a separate sheet).
- (j) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).

(k) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

### **Drawings**

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the first mirror 14 as recited in claim 14, the first 14 and second 5 mirrors define an asymmetric magnetogenic cavity, in particular of Fabry-Perot type as recited in claim 19, the first 14 and second 5 mirrors define an antimagnetogenic cavity as recited in claim 20 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3,12-17,19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Joannopoulos et al. (5,955,749).

With regard to claims 1,12,13,15-17,21, Joannopoulos et al. discloses a light emitting diode comprising a first mirror 622; a quantum well layer 606 serves as a framing converting means of electron-hole pairs into photons; and n-type and p-type layers (604,608) serve as electron and holes generating means; the holes 610 (510) serve as light extraction wherein the holes 610 (510) communicating with a part at least of the quantum well layer 606 and the layers (604,608) and arranged in the periphery of the quantum well layer 606 and the layers (604,608) to extract out of these at least a part of photons in the guided mode. (Note figs. 5,6 of Joannopoulos et al.). It is inherent that Joannopoulos et al. discloses a second mirror opposites to first mirror because the structure of applicant having the second mirror is constituted by an interface between an outer surface of p-type semiconductor 8 and air while the structure of Joannopoulos et al. also having an interface between outer surface of p-type semiconductor and air, so the interface between outer surface of p-type semiconductor and air of Joannopoulos et al. functions as the second mirror and the same as that of the claimed invention. Note fig. 1A of Qstergaard et al. (6,683,898) is cited to support for the inherent position.

Joannopoulos et al. disclose all the claimed subject matter except for the converting means and the first and second mirrors are arranged so as to ensure containment between the first and second photo mirrors presenting at least a selected wavelength associated to a guided propagation mode. However, in reference to the claim language referring to the function of the converting means and the first and second mirrors, intended use and other types of functional language must result in a structural difference between the claimed invention and the prior art in

order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. In re Casey, 152 USPQ 235 (CCPA 1967); In re Otto, 136 USPQ 458, 459 (CCPA 1963).

With regard to claims 2,3, Joannopoulos et al. discloses all the claimed subject matter except for the extracting means are in the form of a diffracting tridimensional structuration defines a photonic quasi-crystal of holes or columns constituting diffracting elements with dimensions selected based on at least the wavelength of the photons in the guided mode. However, it would have been obvious to one of ordinary skill in the art to recognize that the holes 610 (510) of Joannopoulos et al. serve as light extraction wherein the holes 610 (510) are in the form of a diffracting tridimensional structure with dimensions selected based on at least the wavelength of the photons in the guided mode in order to increase high efficiency output of light emitting device.

With regard to claim 14, Joannopoulos et al. discloses the first mirror 622 is a reflective mirror of the Bragg's mirror type placed on a substrate 602. Note fig. 6 of Joannopoulos et al.

With regard to claims 19,20, Joannopoulos et al. discloses all claimed invention as in claim 1, except the first and second mirrors define an asymmetric magnetogenic cavity of Fabry-Perot type or antimagnetogenic cavity with wavelength of the photons emitted by the converting means. However, it would have been obvious to one of ordinary skill in the art to recognize that the first and second mirrors of Joannopoulos et al. define as an asymmetric magnetogenic cavity of Fabry-Perot type or antimagnetogenic cavity with wavelength of the photons emitted by the converting means because Joannopoulos et al.'s structure is identical to the claimed invention, thus

Joannopoulos et al.'s device functions the same as that of applicant's device in order to make interferometer device.

***Allowable Subject Matter***

4. Claims 4-11,18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 4-11,18 are allowable over the prior art of record, because none of these references disclose or can be combined to yield the claimed invention such as the size of the edges being substantially equal to a selected average value with a percentage close to within approximately +15% and -15% as recited in claim 4, and two AlGaAs barriers framing a quantic well in InGaAs and forming the converting means, a first means of electric contact to enable the p doped GaAs layer to place under a positive polarization and a second means of electric contact suitable to place the n doped GaAs layer to be placed under a negative polarization as recited in claim 18.

**Conclusion**

5. Any inquiry concerning this communication or earlier communication from the examiner should be directed to Tan Tran whose telephone number is (571) 272-1923. The examiner can normally be reached on M-F 8:30AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn can be reached on (571) 272-1915. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for after final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

TT

Oct 2004

  
**Minhloan Tran**  
**Primary Examiner**  
**Art Unit 2826**